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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/159,775	09/24/1998	HIDEO KATO	35.G2254	5553

5514 7590 04/02/2004

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NEW YORK, NY 10112

EXAMINER
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BROWN, KHALED

ART UNIT	PAPER NUMBER
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2877

DATE MAILED: 04/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/159,775

**Applicant(s)**

KATO ET AL.

**Examiner**

Khaled Brown

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 65-77 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 65-71, 73 and 75-77 is/are rejected.
- 7) ☒ Claim(s) 72 and 74 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 September 1998 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 26.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 65,67,68,69 are still rejected under 35 U.S.C. 102(b) as being anticipated by Nakata (US 5349604).

Re clms 65,67,68,69: Nakata discloses an illuminator comprising: an illumination system which illuminates a surface to be illuminated with luminous light from a light source (Nakata Fig 1), wherein said illumination system has one optical element (Nakata 2), which has a titanium oxide film formed on only the periphery of its surface (Nakata Col 1 lines 40-46).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 66 is still rejected under 35 U.S.C. 103(a) as being unpatentable over Nakata (US 5349604) in view of Yamada et al (US 5028697).

Re clm 66: Nakata discloses the claimed invention as noted above. However, Nakata does not specifically state that its laser emits ultraviolet light. Yamada et al discloses that a laser should be an ultraviolet laser because ultraviolet lasers increase resolution (Yamada et al Col 1 line 18). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the laser of Nakata emit ultraviolet light because it would increase resolution as taught by Yamada et al.

Claims 70,73 and 75-77 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oomura (US 5668672) in view of Nakata (US 5349604).

Re clm 70: Oomura discloses a scanning exposure apparatus comprising: an illumination system (Oomura 1); a projection system (Oomura 5) and a laser light source (Oomura 100). However Oomura does not disclose an optical element which has a titanium oxide film formed on only a periphery of its surface. Nakata discloses a laser light source that has an optical element which has a titanium oxide film formed on only a periphery of its surface (Fig 1) because it prevents the generation of nonuniformity of an exposure beam intensity (Nakata Col 1 lines 40-46). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to replace the light source of Oomura with the improved light source of Nakata having an optical element with a titanium oxide film formed on only a periphery

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surface because it would prevent the generation of nonuniformity of an exposure beam intensity in the exposure apparatus of Oomura as taught by Nakata.

Re clm 73 : a lens (Nakata 2)

Re clm 75: light passes (Nakata Fig 1 components A and B)

Re clm 76: scanning exposure (Oomura Col 8 lines 36-37)

Re clm 77: The combination system of Oomura and Nakata discloses an exposing step (Oomura Col 8 lines 44-46). However the combination system of Oomura and Nakata does not explicitly disclose a developing step. It would have been obvious to one of ordinary skill in the art at the time the invention was made to develop the exposed wafer of the combination system of Oomura and Nakata because it was well know in the art at the time the invention was made to develop a wafer after exposing the wafer since this is the next step in the photolithography process.

Note: a signed copy of the IDS filed 2-28-03 is attached to this office action.

Claim 71 is rejected under 35 U.S.C. 103(a) as being unpatentable over Oomura in view of Nakata as applied to claims 70 above, and further in view of Moriyama et al (US 4358198).

Re clm 71: The combination system of Oomura and Nakata discloses the claimed invention as noted above. However the combination system of Oomura and Nakata does not disclose a supporting unit having titanium oxide on it. Moriyama et al discloses a supporting unit having titanium oxide on it to improve performance (Moriyama et al Fig 1). Therefore it would have been obvious to a person of ordinary skill in the art at the

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time the invention was made to incorporate the supporting unit having titanium oxide on it of Moriyama et al into the combination system of Oomura and Nakata because it would improve performance.

### ***Allowable Subject Matter***

Claims 72 and 74 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the prior art of record fails to disclose or suggest the optical element is a diaphragm, shutter, lens barrel or mirror in conjunction with the rest of the claimed subject matter.

### ***Response to Arguments***

Applicant's arguments filed 12-3-03 have been fully considered but they are not persuasive. The applicant argues that the Nakata patent does not disclose an optical element which has a titanium oxide film formed on only the periphery of its surface (Remarks filed 12-3-03 p. 8 lines 1-9). However the Nakata patent does disclose an optical element (2) which has a titanium oxide film formed on only the periphery of its surface (Nakata Col 1 lines 40-46). Nakata discloses that the optical element (2) is anti-reflection coated with titanium oxide which means that the outward bounds of the optical element as distinguished from its internal regions or center is coated with titanium oxide

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(Nakata Col 1 lines 40-46). Thus only a periphery of the optical element is coated with titanium oxide.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khaled Brown whose telephone number is 571-272-2411. The examiner can normally be reached on M-F 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on 571-272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KB  
March 4, 2004

  
Frank Font  
Supervisory Patent Examiner  
Art Unit 2877